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AMENDMENTS TO THE CLAIMS

1. (original) A process to prepare a polyphenylene ether resin containing aliphatic unsaturation, wherein said process comprises:

New claim 20

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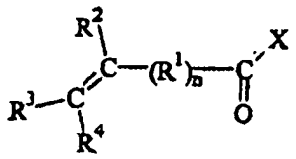
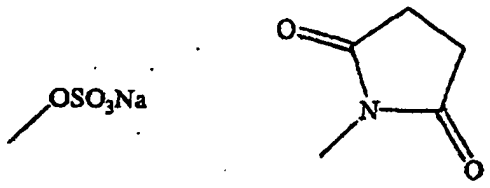
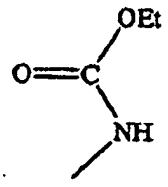
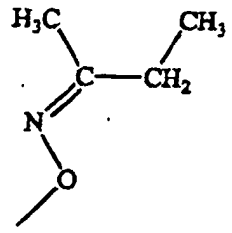
reacting a polyphenylene ether resin with an unsaturated compound in a solvent to form a solution containing a polyphenylene ether resin containing aliphatic unsaturation, wherein the unsaturated compound has the formula

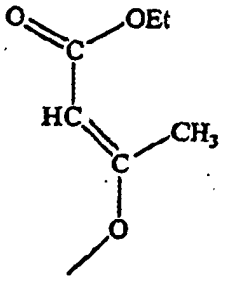


wherein R^1 is an aliphatic or aromatic residue, n can vary from 0 to about 10, and wherein each of R^2, R^3, and R^4 are independently hydrogen, alkyl, or aryl, and wherein X is a residue of one of the formulae









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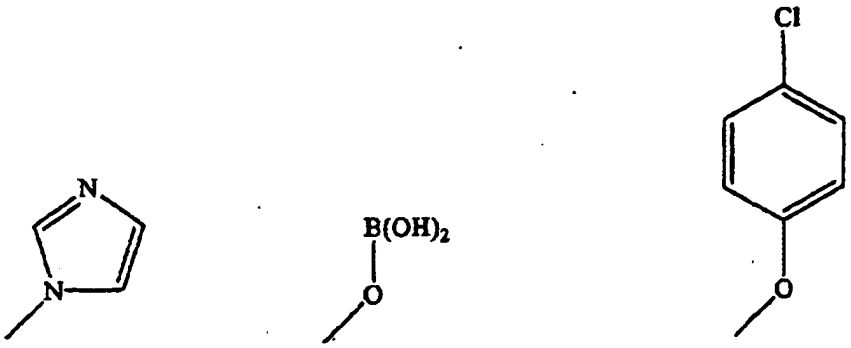

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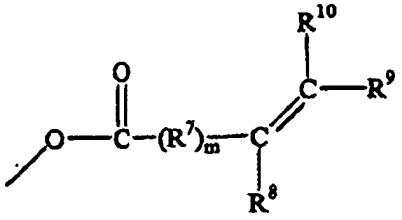

wherein R^7 is an aliphatic or aromatic residue, m can vary from 0 to about 10, and wherein each R^8, R^9, and R^{10} are independently hydrogen, alkyl, or aryl; and

precipitating the polyphenylene ether containing aliphatic unsaturation from the solution by combining the solution with an antisolvent, wherein the antisolvent comprises a compound selected from alkanols having one to about ten carbon atoms, ketones having three to about ten carbon atoms, and alkanes having five to about ten carbon atoms, and mixtures thereof.

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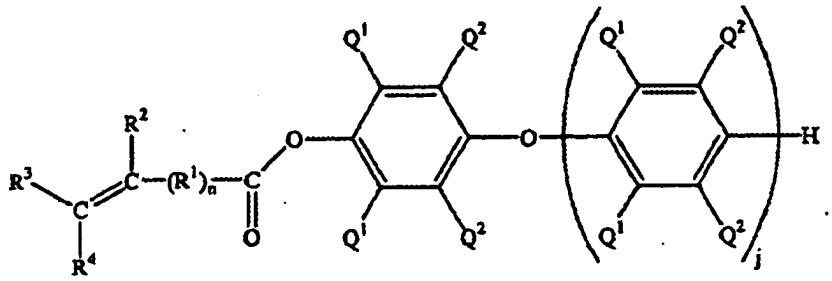
2. (original) The process of claim 1, wherein the polyphenylene ether containing aliphatic unsaturation has the formula



wherein R^1 is an aliphatic or aromatic residue; n is 0 to about 10; each of R^2, R^3, and R^4 is independently hydrogen, alkyl, or aryl; j has an average value less than 49; each Q^1 is independently halogen, primary or secondary lower alkyl, phenyl, haloalkyl, aminoalkyl, hydrocarbonoxy, or halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms; and each Q^2 is independently hydrogen, halogen, primary or secondary lower alkyl, phenyl, haloalkyl, hydrocarbonoxy or halohydrocarbonoxy wherein at least two carbon atoms separate the halogen and oxygen atoms.

3. (original) The process of claim 2, wherein j has an average value less than 34.

4. (original) The process of claim 2, wherein each Q^1 is methyl, and each Q^2 is hydrogen.

5. (original) The process of claim 1, wherein the polyphenylene ether resin comprises 2,6-dimethyl-1,4-phenylene ether units and 2,3,6-trimethyl-1,4-phenylene ether units.

6. (original) The process of claim 1, wherein n is 0.

7. (original) The process of claim 1, wherein the polyphenylene ether resin has an intrinsic viscosity of about 0.08 to about 0.25 dl/g as measured in chloroform at 25°C.

8. (original) The process of claim 1, wherein the unsaturated compound is acrylic anhydride, methacrylic anhydride, or a mixture thereof.

9. (original) The process of claim 1, wherein the solvent is selected from benzene, toluene, ethylbenzene, xylene, o-dichlorobenzene, tetrachloromethane, trichloromethane, 1,2-dichloroethane, and trichloroethylene.

10. (original) The process of claim 1, wherein the solvent comprises toluene.

11. (original) The process of claim 1, wherein the solvent is selected from styrene, α-methylstyrene, 2-methylstyrene, 3-methylstyrene, 4-methylstyrene, 2-t-butylstyrene, 3-t-butylstyrene, 4-t-butylstyrene, 1,3-divinylbenzene, 1,4-divinylbenzene, 1,3-diisopropenylbenzene, 1,4-diisopropenylbenzene, styrenes having from 1 to 5 halogen substituents on the aromatic ring, and combinations thereof.

12. (original) The process of claim 1, wherein the solvent comprises styrene.

13. (original) The process of claim 1, wherein the antisolvent comprises methanol, ethanol, n-propanol, isopropanol, n-butanol, isobutanol, acetone, methyl ethyl ketone, or a mixture thereof.

14. (original) The process of claim 1, wherein the antisolvent comprises an alkanol having two to six carbon atoms.

15. (original) The process of claim 1, wherein the antisolvent comprises an alkanol having three to five carbon atoms.

16. (original) The process of claim 1 wherein the antisolvent further comprises about 0.1 to about 30 weight percent of a C_6-C_{18} aromatic hydrocarbon.

17. (original) The process of claim 1 wherein the antisolvent further comprises about 0.1 to about 10 weight percent of water.

18. (original) The process of claim 1, wherein combining the solution with the antisolvent comprises adding the solution to the antisolvent.

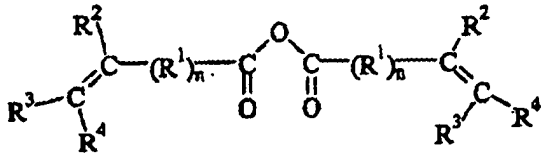
19. (original) The process of claim 1, wherein combining the solution with the antisolvent comprises adding the antisolvent to the solution.

20. (original) The process of claim 1, wherein combining the solution with the antisolvent comprises mixing the solution and the antisolvent with a shear rate of about 500 sec^{-1} to about 50,000 sec^{-1}.

21. (original) The process of claim 1, further comprising washing the solution with an aqueous solution prior to combining the solution with the antisolvent.

22. (original) A process to prepare a polyphenylene ether resin containing aliphatic unsaturation, wherein said process comprises:

reacting a polyphenylene ether resin with an unsaturated compound in a solvent to form a solution containing a polyphenylene ether resin containing aliphatic unsaturation; wherein the polyphenylene ether comprises 2,6-dimethyl-1,4-phenylene ether units, 2,3,6-trimethyl-1,4-phenylene ether units, or a mixture thereof; and wherein the unsaturated compound has the formula



wherein R^1 is an aliphatic or aromatic residue, n can vary from 0 to about 10, and wherein each of R^2, R^3, and R^4 are independently hydrogen, alkyl, or aryl; and

precipitating the polyphenylene ether containing aliphatic unsaturation from the solution by combining the solution with an antisolvent, wherein the antisolvent comprises an alkanol having one to about ten carbon atoms.

23. (original) A process to prepare a polyphenylene ether resin containing aliphatic unsaturation, wherein said process comprises:

reacting a polyphenylene ether resin with an unsaturated compound in a solvent to form a solution containing a polyphenylene ether resin containing aliphatic unsaturation; wherein the polyphenylene ether comprises 2,6-dimethyl-1,4-phenylene ether units, 2,3,6-trimethyl-1,4-phenylene ether units, or a mixture thereof; and wherein the unsaturated compound is methacrylic anhydride; and

precipitating the polyphenylene ether containing aliphatic unsaturation from the solution by combining the solution with an antisolvent, wherein the antisolvent comprises an alkanol having three to five carbon atoms.

24. (original) A polyphenylene ether resin containing aliphatic unsaturation, prepared according to the method of claim 1.

25. (original) The polyphenylene ether resin containing aliphatic unsaturation of claim 24, comprising less than 100 parts per million by weight of residual unsaturated compound.

26. (original) A polyphenylene ether resin containing aliphatic unsaturation, prepared according to the method of claim 22.

27. (original) The polyphenylene ether resin containing aliphatic unsaturation of claim 26, comprising less than 100 parts per million by weight of residual unsaturated compound.

[[27]] 28. (currently amended) A polyphenylene ether resin containing aliphatic unsaturation, prepared according to the method of claim 23.

[[28]] 29. (currently amended) The polyphenylene ether resin containing aliphatic unsaturation of claim [[27]] 28, comprising less than 100 parts per million by weight of residual unsaturated compound.

30. (new) The process of claim 1, wherein the polyphenylene ether resin has an intrinsic viscosity of about 0.08 to about 0.60 dl/g as measured in chloroform at 25°C.